

# PEAVEY®

## PSM™ -2 Unidirectional Microphone

### SPECIFICATIONS

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**Element Type:**

Back-electret condenser

**Polar Pattern:**

Half cardioid (cardioid in half space)

**Front-To-Back Rejection:**

20-25 dB typical

**Impedance:**

Low - approx. 500 ohms, balanced

**Frequency Response:**

50-20,000 Hz

**Sensitivity:**

Output Power Level - 45 dB  
(0 dB = 1m w/Pascal)

Open Circuit Voltage - 61 dB  
(0 dB = 1 volt/dyn/cm<sup>2</sup>)

**Signal-To-Noise Ratio:**

Approx. 72 dB re 1 Pascal

**Maximum SPL:**

127 dB at 1 kHz

**Power Requirements:**

9-52 volt phantom

**Phasing:**

Positive (inward) acoustic pressure at diaphragm produces positive voltage at pin #2

**Finish:**

Low gloss black

**Connector (Output Module):**

3 pin XLR type

**Dimensions:**

See dimensional drawing

**Weight:**

Microphone - 356 gms

**Furnished Accessories:**

25' interconnect cable and mounting screw

**FEATURES:**

- Special back electret element
- Unidirectional (half-cardioid above boundary)
- Compact, low profile design
- Special shielding provision for rejection of RF interference
- Rugged, cast housing and steel grille
- Shock absorbing mounting pad for quiet operation
- Black, non-reflecting finish
- Detachable cable
- Built-in electronics interface with any 9-52 volt phantom supply

**DESCRIPTION:**

The PSM™ 2 is specifically designed for low profile, surface mounted microphone applications. The microphone consists of a wide range unidirectional condenser capsule, so mounted in its rugged housing that it becomes part of the acoustical boundary when placed on a flat reflective surface.

**OPERATION:**

When a conventional microphone is used near a large reflecting surface, sound reflected from the surface reaches the microphone at a slightly later time than the direct sound from the source.

Depending on distance and frequency, the reflected sound may either add to or subtract from the direct sound, resulting in a number of peaks and dips in the output response (comb filter effect) — seriously degrading the reproduced sound.

When the PSM 2 is placed on the reflecting surface, it becomes part of the reflecting boundary and the interfering reflections are eliminated. The resulting reproduction is smooth, clean, and natural.

Another advantage of the PSM 2's surface mounted (boundary layer) operation is that the sound pressure at the surface is about twice what it would be at the same distance in free space. This results in a 6 dB increase in output level and an added 6 dB of signal-to-noise ratio.

With a unidirectional surface-mounted microphone such as the PSM 2, there is also about a 3 dB improvement in directivity which improves both feedback rejection and control of unwanted sound.

## APPLICATIONS AND USE

The excellent performance, low profile, and rugged construction of the PSM 2 make it an ideal choice for any sound reinforcement or recording application in which a unidirectional surface microphone may be an advantage — in footlight areas for stage productions, on conference tables or TV news desks, on church altars, as a "plant" microphone on walls or ceilings of sets, and in any number of related situations. In instrumental music applications it may be mounted to the inside of a grand piano lid, used in front of or inside kick drums, or in front of instrument amps.

For optimum reproduction with the PSM 2 (or any similar microphone), several important factors must be recognized:

1. The low frequency performance is directly related to the size and shape of the reflecting surface; i.e., the larger the surface, the better the low frequency reproduction. For full music reproductions, for example, the sides of the surface should be at least 10'.
- For good speech reproduction, surfaces as short as 3' are quite acceptable. Very good speech performance is obtained on altars or conference tables.
2. For good results, the surface must be acoustically reflective. Proper results will not be obtained on carpeted floors or padded tables.
3. In situations requiring more than one PSM 2 (such as footlight areas or long conference tables), the "3 to 1 rule" for microphone placement should be observed for best results. This simply means that the distance between adjacent microphones should be at least three times the distance to the nearest source for optimum sound quality.
4. The optimum working angle between the source and the mounting surface is from about 10° to 60°. Under no circumstances should the source be below the mounting surface.

## SPECIAL FEATURES

The rugged die-cast and formed steel construction of the PSM 2 assure unusual dependability — even if accidentally stepped upon on a stage floor.

Despite the great durability, the PSM 2 is light enough to be easily attached to a wall, ceiling, or piano lid by use of doublefaced tape. (Note: For best performance, the tape should not be too thick. Velcro or foam tapes may be thick enough to limit high frequency performance. A good grade of carpet tape works very well.)

For more permanent installation to such surfaces, simply remove the screw and nut securing the top grille and replace with the wood screw supplied — which may then be screwed directly to the desired surface. For those permanent installations requiring concealment of the cable, the PSM 2 may be easily modified to provide bottom cable exit as follows:

1. Remove the perforated grille by withdrawing the single screw and nut.
2. Lift the capsule and PC board by removing the two screws holding the board ends. Lift the capsule to one side and free the board by sliding it from under the output connector.
3. Pierce through the  $\frac{1}{8}$ " hole in front of the output connector to perforate the bottom isolation pad.
4. Detach the small connector from the 25' cable and insert cable end through the pierced opening. The cable conductors may now be attached either to the small connector terminals or to the connecting leads, observing the following:  
Red cable conductor to red lead  
White cable conductor to blue lead  
Cable shield to white lead
5. To secure the cable, simply pull the jacket in far enough so that it is

clamped by the inner edge of the PC board as the board is slid into position, and tighten the two screws.

6. Insert the capsule in its original position, with the foam pad on top. Replace grille and secure with desired screw. (See preceeding paragraph.)

Note: For maximum RF rejection, it is important that the plug shells of any connecting cables be grounded to pin #1 at each end. "Ground lifts" should not be used.

## ARCHITECTURAL AND ENGINEERING SPECIFICATIONS

The microphone shall be a back-electret condenser type so constructed that it becomes part of the acoustic boundary when placed on a reflecting surface. The frequency response shall be 50 Hz to 20 kHz when used on an infinite boundary. The polar response shall be half-cardioid (cardioid in half space) with rear response typically 20 dB or more down. The microphone shall have an output power level of -45 dB where 0dB = 1mW per Pascal, and a nominal impedance of 500 ohms.

The microphone shall have a non-reflecting, low gloss black (alternatively, ivory) finish.

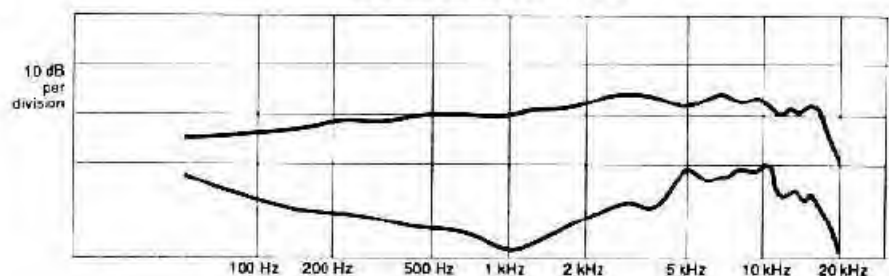
The microphone shall include an interfacing cable 25 feet long with a 3 pin XLR type output connector.

The microphone shall be 5.50 inches long and 2.95 inches wide with a height of 1.08 inches.

The microphone shall operate properly with any 9-52 volt phantom power source.

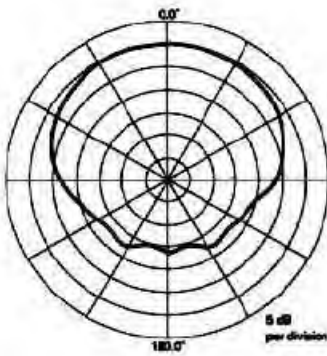
The microphone shall be a Peavey PSM™ 2 or equivalent.

## FREQUENCY RESPONSE

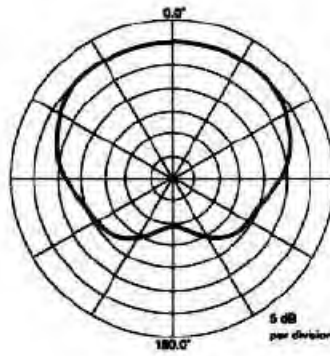


NOTE: 0° and 180° (measured at 1 meter at 20° above the infinite boundary.)

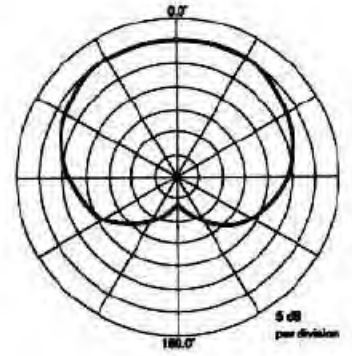
## POLAR PATTERNS



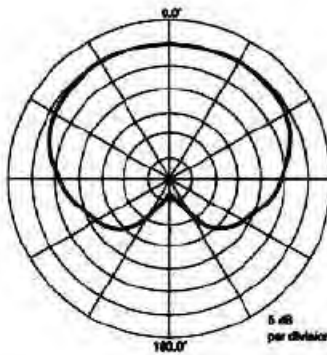
**100Hz**



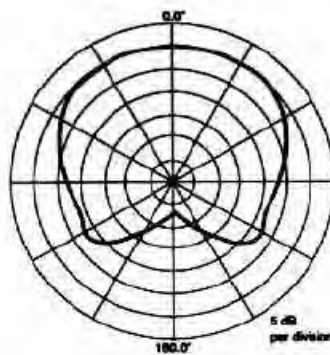
**250Hz**



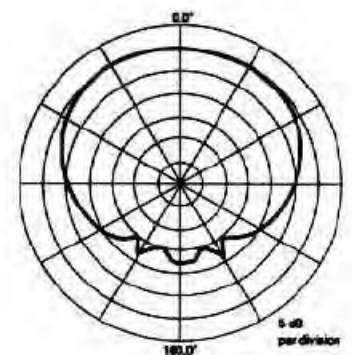
**500Hz**



**1kHz**



**2.5kHz**



**5kHz**

## HORIZONTAL

**NOTE:** Vertical polars in half-space are virtually identical to horizontal polars shown.

## PSM -2

